

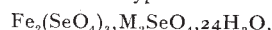
superseded, they keep large manuscript maps on which the newest details are at once entered, and any specialist can obtain on application a drawn copy of the map of any region, which is naturally quite correct and up to date. A side-issue, which the author does not consider, is whether people would rush into archives with the same eagerness with which they now rush into print, and whether it might be better if they did not.

THE great alteration which occurs in the fluorescence spectrum of sodium vapour when the wave-length of the exciting light is changed is the subject of a brief communication by Prof. R. W. Wood in No. 4 of the *Physikalische Zeitschrift*. Three kinds of monochromatic light, having wave-lengths 5085, 4799, and 4676 respectively, and generated by a cadmium arc lamp of the Heraeus type, were employed in the experiments.

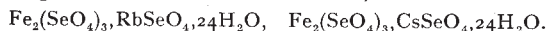
THE lecture delivered by Prof. Emil Fischer before the German Chemical Society on January 6, and having for its subject his recent researches on amino-acids, polypeptides, and the proteids, is published in the current number of the *Berichte* (No. 3). The lecture covers an extraordinarily wide field, and contains a *résumé* of the experimental results obtained during the past five years by Prof. Fischer and his colleagues. A briefer and more general summary of recent work tending towards the synthesis of proteid material is contributed by Prof. Maillard to the *Revue générale des Sciences* for February 15.

IN the Proceedings of the American Academy of Arts and Sciences (vol. xli., No. 19) Messrs. Gilbert N. Lewis and Plumer Wheeler have studied the electrical conductivity of solutions of potassium iodide in liquid iodine. Such solutions are found to conduct electricity as well as the best aqueous solutions, but they present certain interesting anomalies. In dilute solution the molecular conductivity increases linearly with the concentration, rising to a maximum and then falling as the concentration increases; the phenomena show a certain analogy with the deviations from Ostwald's dilution law in aqueous solutions. The temperature coefficient of conductivity is, moreover, negative for dilute solutions, but with increasing concentration it passes through zero and becomes positive.

ALTHOUGH several attempts have been made to prepare selenium iron alums of the type



no compound of this group has yet been obtained. In the February number of the *Gazzetta* Dr. Cesare Roncagliolo describes the method by which he has succeeded in preparing the rubidium and caesium salts,



As anticipated, these salts were found to be isomorphous with the ordinary alums. As the rubidium and caesium salts melt at about 40° C. and 55° C. respectively, it may be inferred by analogy with the other alums that the corresponding potassium and sodium alums melt below 0° C. If this is the case, an explanation is afforded of the failure hitherto experienced to prepare these salts.

A SIXPENNY edition of Lord Avebury's "Beauties of Nature and the Wonders of the World we Live in" has been published by Messrs. Macmillan and Co., Ltd.

MESSRS. PERCIVAL MARSHALL AND Co. have published, at 3d. net, a pamphlet by Mr. A. H. Stanley dealing with "Patents to Inventors." A chapter on patent agents is included.

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MESSRS. ARCHIBALD CONSTABLE AND CO., LTD., have published a second edition of Mr. Bertram Blount's "Practical Electro-chemistry," the first issue of which was reviewed at length in *NATURE* of April 18, 1901 (vol. lxiii., No. 1642). The present edition has been revised and brought up to date. The revision of the section on organic electrochemistry has been done with the assistance of Dr. Mollwo Perkin.

THE twenty-first session of the London Geological Field Class, conducted by Prof. H. G. Seeley, F.R.S., will be opened on Saturday, April 28, by an excursion from Nutfield to Redhill, for the observation of parallel escarpments. In addition to the Saturday afternoon excursions, vacation visits extending over two or three days will be made with the view of examining a Tertiary locality in the Hampshire basin, the Cretaceous rocks of north-west Norfolk, Devizes, or Folkestone; the oolites of Swindon or Cheltenham; and the primary rocks of Clifton, the Mendip Hills, the Welsh border, or Leicestershire. The secretary of the class is Mr. J. W. Jarvis, St. Mark's College, Chelsea, S.W.

A COPY of the report of the Felsted School Scientific Society for the year 1905 has been received. The organisation of the members of the society into four sections has now been in working order for two years, and has led to sound collective work, and in some cases originated good individual practical study. Special encouragement is given to the individual efforts of members. Like most similar organisations, this society is greatly in need of funds to supply necessary instruments, specimens, and apparatus to carry out the observations and other work planned by the directors. Men of science could encourage the voluntary study of science in secondary schools by presenting duplicate specimens and unused instruments to school scientific societies. The report shows that a sustained effort is being made at Felsted School to create active interest in the study of science.

MESSRS. ISENTHAL AND Co. have just issued new catalogues dealing respectively with mercury vapour lamps for all purposes, and with electric heating and cooking appliances. The mercury vapour lamps are at present made in three standard lengths of 18 inches, 26 inches, and 38 inches, so as to utilise fully the various standard voltages from 100 volts to 250 volts. At present the lamps are available only for direct current, though they are recommended for use on alternating current in connection with the Grisson rectifier and electrolytic condenser. The catalogue of heating and cooking apparatus is excellently illustrated, and is divided into two sections. The first includes appliances for domestic purposes and use in hotels and clubs, while the second is concerned with technical apparatus for use in factories and laboratories.

OUR ASTRONOMICAL COLUMN.

COMET 1905c.—Giacobini's comet (1905c) has now become much fainter, but does not set until some 3½ hours after sunset. A further instalment of Herr Wedemeyer's ephemeris is given below:—

1906	<i>Ephemeris 12h. M.T. Berlin.</i>					
	α (true)	δ (true)	$\log r$	$\log \Delta$	Brightness	
	h. m. s.	° ' "				
Mar. 16 ...	2 45 1	1 49	0.1371	0.2718	...	0.51
19 ...	2 54 0	2 59				
22 ...	3 2 28	4 5	0.1714	0.3058	...	0.37
25 ...	3 10 28	5 5				
28 ...	3 18 6	6 1	0.2022	0.3375	...	0.28
31 ...	3 25 21	6 53				

As will be seen from the ephemeris, the comet is still traversing the constellation Cetus towards Taurus, and

will enter the latter about March 27. On March 21 it will be only about 2m. directly east of α Ceti.

COMET 1906b.—The comet discovered by Dr. Kopff will evidently not become an object of popular interest, for it passed perihelion at least two months ago, and is now fading rapidly in brightness.

Below is given a set of elements and part of an ephemeris published by Herr M. Ebell in Circular 86 of the Kiel Centralstelle:—

Elements.

$$\begin{aligned} T &= 1906 \text{ January } 4^{\text{h}} 12^{\text{m}} 89^{\text{s}} \text{ Berlin.} \\ \infty &= 138^{\circ} 25' 1'' \\ \Omega &= 328^{\circ} 24' 2'' \quad 1906 \cdot 0 \\ i &= 0^{\circ} 53' 5'' \\ \log q &= 0 \cdot 03508 \end{aligned}$$

Ephemeris 12h. M.T. Berlin.

1906	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	p	q	r	s	t	u	v	w	x	y	z	Bright- ness
	h.	m.	s.																								
Mar. 15	...	11	31	20	...	+	1	57	...	9	7514	...	0	54													
19	...	11	30	10	...	+	2	2	...	9	7842	...	0	44													
23	...	11	29	17	...	+	2	6	...	9	8166	...	0	36													
27	...	11	28	44	...	+	2	9	...	9	8486	...	0	29													

A set of elements computed from later observed positions by Mr. Champreux gives the date of perihelion as December 25.17 Greenwich.

REMARKABLE VARIATION IN THE SPECTRUM OF ζ BOÖTIS.—In No. 4067 of the *Astronomische Nachrichten* Drs. H. Ludendorff and G. Eberhard direct attention to some remarkable variations which took place very suddenly in the spectrum of the double star ζ Boötis.

A spectrogram taken on June 3, 1905, showed a number of bright emission bands undoubtedly similar to those seen in the spectra of new stars, but another spectrum taken on June 5 showed no trace of these.

On looking over previous spectra obtained at the Potsdam Observatory on June 3, 4, and 26, 1902, respectively, only the hydrogen series lines, the calcium line λ 3934, the magnesium line λ 4481, and possible traces of other absorption lines could be detected. No bright bands were present.

The star is a well known double, classed as a "Sirian" star by Sir Norman Lockyer, as belonging to class I.a2 by Prof. Vogel, and as a class A star in the Draper Catalogue.

The question of the variability of the relative brightness of the two components has been much discussed, but was affirmed by W. Struve, Sir W. Herschel, and O. Struve.

A BRILLIANT FIREBALL.—In No. 368 of the *Observatory* Mr. Denning has brought together a large number of observations of a magnificent fireball which was seen in Scotland and the northern counties of England on December 30, 1905.

The meteor appeared at about 4h. 26m., swelled out into a disc, which one observer states was about half the size of the moon, and disappeared when about 10° – 15° above the horizon. The trail left by the meteor lasted for about twelve or thirteen minutes according to most observers, and during that time was contorted into a variety of peculiar forms.

From the insufficient data yet to hand, Mr. Denning supposes that this object was a very late ϵ Arietid, having its radiant point at about 40° – 23° , and on this supposition the height of the meteor works out at sixty-seven miles over Thornhill, in Dumfries, to twenty-seven miles over a point some six miles south of Arran. The earth-point would be about ten miles N.E. of Rathlin.

Thus the length of the path would be seventy-two miles and the velocity about fifteen miles per second.

In the same journal (Nos. 367 and 368) there is published an interesting discussion of the 1905 Bielid meteors by Prof. A. S. Herschel.

OBSERVATIONS OF PHOEBE DURING 1905.—A number of photographic measures of Phœbe, made during the period May 9 to December 14, 1905, are given in Circular 109 of the Harvard College Observatory. The usual exposure given to each photograph was two hours, and only very faint images of the satellite were obtained; thus they were

very difficult to measure exactly, and the resulting residuals are somewhat large.

It is seen from the measures that Phœbe attained its maximum distance from Saturn, viz. $36' \cdot 4$, on September 5. The average differences between the observed distances and declinations and those computed from the ephemeris published in vol. liii. of the *Annals* (p. 141) were about $-0' \cdot 2$ and $-0' \cdot 6$ respectively.

THE LEEDS ASTRONOMICAL SOCIETY.—The Journal and Transactions of the Leeds Astronomical Society (No. 12) has just been received, and contains a number of interesting papers which were read before the society during 1904.

In addition to these there is a *résumé* of the society's work during the year, as shown by a number of communications to various journals.

Non-members may obtain the journal for 1s. 6d. from Messrs. Jackson and Son, Leeds.

NEW MAGAZINES OF BIOLOGICAL CHEMISTRY.

JOURNALS dealing with the chemical aspects of physiological and pathological research have long been current in Germany; but up to the present time English-speaking workers have had to rely on periodicals dealing with all branches of physiology and pathology for the publication of their results. This is by no means disadvantageous to the readers of such journals, for over-specialisation has its drawbacks. But with the ever increasing activity in the biochemical field of research, the need has for long been felt of a special journal, and we have to chronicle the advent of one—the *Bio-chemical Journal*—which supplies the need, under the editorship of Prof. Benjamin Moore and Dr. Whitley, of the Liverpool University. In America also a similar want has been met by the issue of the first numbers of what is there called the *Journal of Biological Chemistry*, which is edited by Prof. Christian Herter, of New York, and Prof. J. J. Abel, of Baltimore.

The prefix *bio* and the adjective *biological* indicate a wider outlook than was implied by the older expression physiological chemistry, for there are chemical matters which have bearings, not only on physiology, but on botany, zoology, and pathology; and, indeed, this broad scope is already recognisable in the early issues of both the journals mentioned. It will be sufficient to take the English journal as an example. In the first number, just to hand, there is a paper by Mr. Joseph Barcroft dealing with the oxygen tension in the salivary glands and saliva, and throwing new light on the question of internal respiration in general. The professor of botany at Liverpool, Mr. Harvey Gibson, contributes an article on the physiological properties of West Indian boxwood, so much used now by the shuttle-makers of the north. The cardiac symptoms noticed in many of these workers are shown to be due to an alkaloid in the wood, which is dissolved out by the perspiration on the hands of the workpeople, and slowly absorbed into the system. Drs. Edie and Whitley describe methods for estimating the daily gain or loss of fixed alkali from the body, and the organic acids in the urine; the application of their results in the case of diabetes is pointed out. It was previously known that in acid poisoning the body protects itself by an increased formation of ammonia from urea; it is now shown that there is a similar protective mechanism at work against excess of alkali in the production of an increased amount of organic acids from carbohydrates. The last paper, by Drs. Moore, Edie, and Abram, more directly illustrates the application of chemical studies to the elucidation of disease. They find that the administration of a neutralised acid extract of the duodenal mucous membrane counteracts diabetes in the few cases examined up to the present. The explanation advanced of the benefit is that the extract stimulates the pancreas to form that internal secretion which regulates carbohydrate metabolism, but which is apparently in abeyance in the diabetic state.

Enough has been said to show the interesting and important kind of material at hand, and we wish our two new contemporaries every success in the future.